

Docket No.: 6301/Consilium/DV

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  
Badri N. KRISHNAMURTHY et al.

Serial No. 09/928,474

Filed: August 14, 2001

For: EXPERIMENT MANAGEMENT SYSTEM, METHOD AND MEDIUM

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Group Art Unit: 2171  
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Examiner:

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J. Marinillo  
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SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner for Patents  
Washington, D. C. 20231

Sir:

In accordance with the provisions of 37 C.F.R. 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the documents listed on the attached form PTO-1449. It is respectfully requested that the documents be expressly considered during the prosecution of this application, and that the documents be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is being filed within three months of the U.S. filing date OR before the mailing date of a first Office Action on the merits. No certification or fee is required.

This submission does not constitute a representation that a search has been made or that no better art exists and does not constitute an admission or representation that any of the listed documents is material or constitutes prior art. If it should be determined that any of the listed documents does not constitute prior art under the United States law, Applicants reserve the right

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to present to the Office the relevant facts and law regarding the appropriate status of such document.

No certification or fee is believed to be required. However, the Commissioner is hereby authorized to charge any additional fees should any be required for this submission, or credit any overpayment to deposit account no. 08-0219.

Respectfully submitted,

HALE AND DORR LLP

A handwritten signature in cursive script, appearing to read "Scott M. Alter".

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**INFORMATION DISCLOSURE  
CITATION IN AN  
APPLICATION**



(PTO-1449)

ATTY. DOCKET NO.  
6301/Consilium/DV

SERIAL NO.  
09/928,474

APPLICANT  
Badri N. KRISHNAMURTHY et al.

FILING DATE  
August 14, 2001

GROUP  
2171

**U.S. PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	5,220,517	06/15/93	Sierk et al.			08/31/90
	5,329,463	07/12/94	Sierk et al.			01/13/93
	5,495,417	02/27/96	Fuduka et al.			03/16/93
	5,497,316	03/05/96	Sierk et al.			04/04/95
	5,503,707	04/02/96	Maung et al.			09/22/93
	5,508,947	04/16/96	Sierk et al.			05/13/94
	5,657,254	08/12/97	Sierk et al.			04/15/96
	5,694,325	12/02/97	Fukuda et al.			11/22/95
	5,838,595	11/17/98	Sullivan et al.			11/25/96

**FOREIGN PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO./ PUBLICATION NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No
	2,050,247	08/29/91	Canada			X	
	2,165,847	08/29/91	Canada			X	
	2,194,855	08/29/91	Canada			X	
	05-151231	06/18/93	Japan				X
	05-216896	08/27/93	Japan				X
	05-266029	10/15/93	Japan				X
	06-110894	04/22/94	Japan				X
	06-176994	06/24/94	Japan				X
	06-252236	09/09/94	Japan				X
	06-260380	09/16/94	Japan				X
	1072967A3	11/21/01	Europe			X	

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**OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)**

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

<b>INFORMATION DISCLOSURE CITATION IN AN APPLICATION</b>   (PTO-1449)				ATTY. DOCKET NO. 6301/Consilium/DV		SERIAL NO. 09/928,474	
				APPLICANT Badri N. KRISHNAMURTHY et al.			
				FILING DATE August 14, 2001		GROUP 2171	
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER'S INITIALS	PATENT APPLICATION NO.	NAME	TITLE	CLASS	SUBCLASS	FILING DATE	
	09/927,444	Ward et al.	Dynamic Control of Wafer Processing Paths in Semiconductor Manufacturing Processes			08/13/01	
<b>FOREIGN PATENT DOCUMENTS</b>							
EXAMINER'S INITIALS	PATENT/ PUBLICATION NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No
<b>OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)</b>							
	Zhou, Zhen-Hong and Rafael Reif. August 1995. "Epi-Film Thickness Measurements Using Emission Fourier Transform Infrared Spectroscopy—Part II: Real-Time <i>in Situ</i> Process Monitoring and Control." IEEE Transactions on Semiconductor Manufacturing, Vol. 8, No. 3.						
	Telfeyan, Roland, James Moyne, Nauman Chaudhry, James Pugmire, Scott Shellman, Duane Boning, William Moyne, Arnon Hurwitz, and John Taylor. October 1995. "A Multi-Level Approach to the Control of a Chemical-Mechanical Planarization Process." Minneapolis, Minnesota: 42 <sup>nd</sup> National Symposium of the American Vacuum Society.						
	Chang, E., B. Stine, T. Maung, R. Divecha, D. Boning, J. Chung, K. Chang, G. Ray, D. Bradbury, O. S. Nakagawa, S. Oh, and D. Bartelink. December 1995. "Using a Statistical Metrology Framework to Identify Systematic and Random Sources of Die- and Wafer-level ILD Thickness Variation in CMP Processes." Washington, D.C.: International Electron Devices Meeting.						
	Smith, Taber, Duane Boning, James Moyne, Arnon Hurwitz, and John Curry. June 1996. "Compensating for CMP Pad Wear Using Run by Run Feedback Control." Santa Clara, California: VLSI Multilevel Interconnect Conference.						
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<b>OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)</b>							
	Boning, Duane, William Moyne, Taber Smith, James Moyne, Roland Telfeyan, Arnon Hurwitz, Scott Shellman, and John Taylor. October 1996. "Run by Run Control of Chemical-Mechanical Polishing." <i>IEEE Trans. CPMT (C)</i> , Vol. 19, No. 4, pp. 307-314.						
	Edgar, Thomas F., Stephanie W. Butler, Jarrett Campbell, Carlos Pfeiffer, Chris Bode, Sung Bo Hwang, and K.S. Balakrishnan. May 1998. "Automatic Control in Microelectronics Manufacturing: Practices, Challenges, and Possibilities." <i>Automatica</i> , Vol. 36, pp. 1567-1603, 2000.						
	Chemali, Chadi El, James Moyne, Kareemullah Khan, Rock Nadeau, Paul Smith, John Colt, Jonathan Chapple-Sokol, and Tarun Parikh. November 1998. "Multizone Uniformity Control of a CMP Process Utilizing a Pre and Post-Measurement Strategy." Seattle, Washington: SEMETECH Symposium.						
	Moyne, James. October 1999. "Advancements in CMP Process Automation and Control." Hawaii: (Invited paper and presentation to) Third International Symposium on Chemical Mechanical Polishing in IC Device Manufacturing: 196 <sup>th</sup> Meeting of the Electrochemical Society.						
	Lee, Brian, Duane S. Boning, Winthrop Baylies, Noel Poduje, Pat Hester, Yong Xia, John Valley, Chris Koliopoulus, Dale Hetherington, HongJiang Sun, and Michael Lacy. April 2001. "Wafer Nanotopography Effects on CMP: Experimental Validation of Modeling Methods." San Francisco, California: Materials Research Society Spring Meeting.						
	NovaScan 2020. February 2002. "Superior Integrated Process Control for Emerging CMP High-End Applications."						
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